

THE PENNSYLVANIA STATE UNIVERSITY
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DEPARTMENT OF LEARNING, DESIGN, AND TECHNOLOGY

ELEARNING DESIGN PORTFOLIO

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ABSTRACT

This paper will serve to highlight my work in my instructional design portfolio. This includes offering insight into my design decisions and connects my work to the evidence and research principles that were based upon. The portfolio can be found at this link:

<http://www.personal.psu.edu/mrm5572/Eportfolio/Matt%20McGee%20Schreyer%20ePortfolio%20-%20Storyline%20output/story.html>.

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Chapter 1

Using Instructional and Visual Design Principles in a Learning Module

Open and view “Learning Module” to see the module discussed in this section. These are pieces of my latest module, and were built using Adobe Captivate. The design features multiple visual, and instructional design decisions that I will discuss here.

Instructional Design Decisions

The instructional designs were based off of Mayer’s principles of instruction, outlined in his book (Clark and Mayer, 2014).

The first principle is the multimedia principle, which states that words and graphics are typically better than using words alone (Clark and Mayer, 2014). This is demonstrated on Slide 7 (Figure 1). The goal was to get across to the learner that the tool they are learning will use a branching decision tree module. My goal was to make a diagram that represented this branching decision tree but was as simple as possible as to not detract from the other points on the slide.

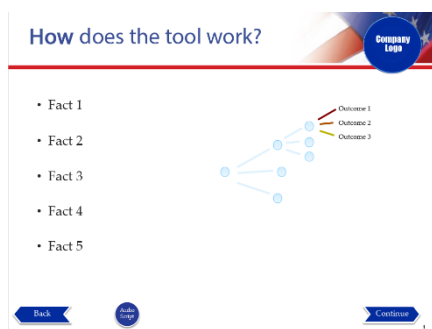


Figure 1 Words and Graphics, Simple Design

Next, I applied both the modality principle and the redundancy principles, in addition to meeting the client's needs. The modality principle states that words presented as audio narration have a greater impact, and the redundancy principle states that having words both on the screen and read aloud distract the learner, and hurts learning. However, the client wanted the ability for their learners to be able to read what was on screen if they so chose. The compromise was to create two modes the learner could experience. The first (Figure 2) used the modality principle by giving both words for the learner to look at, but not having redundancy with the audio. The second (Figure 3) was an optional view the learners could access at any time, which would allow the learners to go through the module at their own pace without listening to the audio.

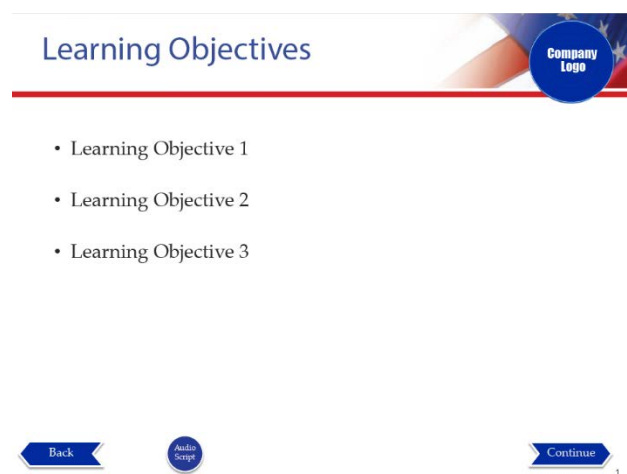


Figure 2 Modality Principle Example

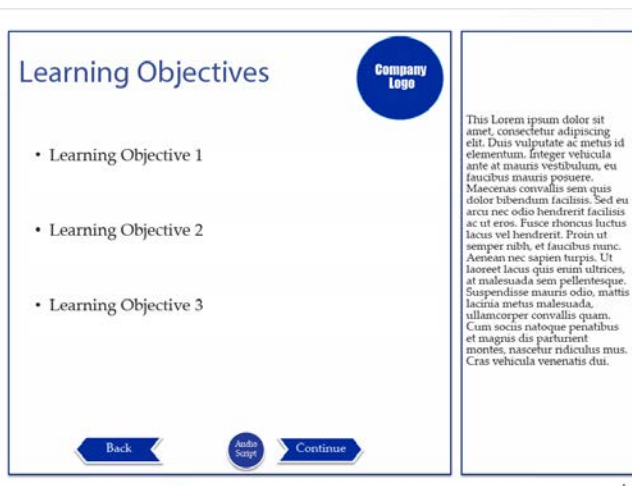


Figure 3 Learner Preference

The next principle was the segmenting principle; if you look at slide 38 (Figure 4), you see the result of this principle. This principle states that the learner retains more when the content is chunked into simple and understandable pieces (Clark and Mayer, 2014). To accomplish this, I worked directly with the Subject Matter Expert to determine what the best categories were for the content, and used these to create the eight sections of the training.

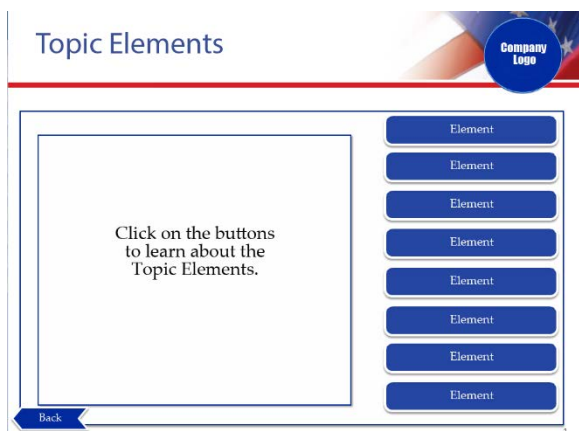


Figure 4 Segmenting Principle

Another decision I choose was to create deliberate practice, and to make the practice as close as possible to the actual job the learner will have to perform. The practice in this module started off simple, to raise learner confidence and allow for exploratory learning. These were

practice elements demonstrated on Slides 21, 23, 33. Please refer to these slides to see the interactivity.

Visual Design Principles

When considering visual design in this module, I used the Cognitive theory of learning as a lens in which to view both the instructional and the visual design of the project.

The first major visual design principle, as identified by Malamed (2009) is that the brain processes information on a screen from left to right, and top to bottom. This prompted the change from the initial slide design (Figure 5) to the current slide design (Figure 6). The background we received from our partners to use in the training initially had their logo in the upper left hand corner. This space is where the learner would most likely go to first on each screen. The partner's logo is not what should be stressed then on that screen, and so the screen was flipped and important information (the slide title) was moved to the important upper left hand position. This was also done with the audio script view (Figure 3) placing the audio script on the right, where it would provide the least distraction for the learner.



Figure 5 First Design

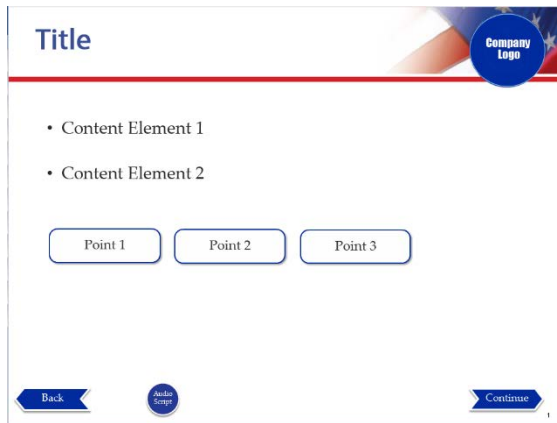


Figure 6 Second Design Using Right to Left Visuals

Another major visual decision used was trying to make the most efficient processing. Low fidelity images are easier for the brain to process (Malamed, 2009) so the visual designs (like figure 1) were created using simple lines and shapes.

Lastly, I minimized visual noise by choosing flat colors, minimal textures, and diminishing shadows (Malamed, 2009) throughout the project. A simple three-color palette was selected, with consistent colors maintained throughout.

Chapter 2

Using Storytelling in a Self-Paced Learning Module

Open and view “Digital Storytelling” to see the module discussed in this section. This module was the first full module I completed, and was done using Articulate Storyline One, with images designed in Adobe Photoshop and Illustrator.

Objectives and Audience

This module was designed to be a part of a series of modules that would teach the basics of instructional design/learning design theory to an undergraduate population. This module’s goal was to help the learners understand and apply item analysis to multiple choice assessments. The content for this came from the book *Educational Assessment of Students* (Nitko, 2004).

Thought Process

My goal for this piece was to represent the content in the book in a way that was more engaging for the learner. My first plan to do this was to create a comic book style adventure. As I was sketching out some panels and brainstorming a way to make an interesting character, the story of “Kevin the (future) Lawyer” emerged.

The protagonist Kevin became an avatar I tried to put in a position that the audience would identify with. He works hard and was ambitious, but sometimes it seems like the cards are stacked against him. In this case, he has studied hard for the tests but the questions always seem to be too confusing and he always gets a grade that he doesn’t believe reflects his ability. I

thought this was a situation that many undergraduates find themselves in, and hopefully they would empathize with Kevin enough to want to learn alongside him.

Once Kevin was introduced and served as the primary motivator, a variety of ways of presenting information emerged. Following Kevin along as he proceeds to research the topic, the learners themselves are presented with a desk as a menu and can progress through a series of micro lessons. I decided to break the content into three sections: What is a “bad” question, calculating the variables needed to find bad questions, and interpreting their results. These were chosen and placed in this order because they followed the thought process: “What is the problem, how do I solve it, and how do I implement my solution?”

These sections were presented in a linear order, but purposely displayed in a way that seemed like there were multiple options. While the learner could only click them in order, this appearance of choice happens several times in this module. It allows for the students who progress through it naturally to feel like they have a lot of control over their learning, but students who stray from the path don’t get lost.

When presenting content, I tried to incorporate many different types of activities and methods of presenting information. For the more complicated sections, like where the users have to calculate item analysis variables, I outline the activities in the same order they would when doing this process in reality. If there were topics areas that would cause some confusion, or that people might have questions about, I used Kevin as a facilitator to point out potential difficulties and help walk learners through.

Lastly, the final assessment for this module was meant to serve as a completely realistic challenge. They are given a set of data (in the story, it is Kevin’s data and his name is in the

spreadsheet) and are asked to perform an item analysis to determine which questions should, from an instructional standpoint, be looked at again.

Badging Element

One of the goals of the undergraduate framework was to incorporate digital badging to serve as certification of completion. I used Penn State's Badging Software to incorporate the requirements of the module with the badging system. The course and badge were designed together, so that upon completion of the course you have something tangible to add to the badge. This allows for the badging platform to store this proof of competency within its metadata.

Chapter 3

Applying visual, storytelling, and instructional design elements to a learning module

Open and view “Learning Simulations” to see the module discussed in this section. This are pieces of my latest module, and was built using Articulate Storyline Version Two.

This last design is my latest and most polished module, and in it I incorporate both visual design decisions, storytelling, and Mayer’s instructional principles. My goal for this module was, again, to teach the content such that it was situated in context. The content for this module is teaching the learners to use a form. While not fully complete, this design has several parts to it: collecting the information needed (Design One), filling out the form properly (Design Two), summarizing the form properly (Design Three), and using the form to communicate information to the people it is relevant to.

Visual Elements

The visual design decisions I choose for this module was similar to that of the decisions made in my first module. A simple color pallet was selected, with each color having specific purpose. Yellow was used to highlight things to look at (and was the color of feedback and instructions on screen). Purple was most mellow of the colors, and is used as the background of the content. Orange is consistently used as the color for buttons.

A modern looking design was done by putting an almost monochrome or desaturated picture in the background, with a slightly opaque box on top for content. Design one was intended to have an almost augmented reality type of feel, where the realistic picture was overlaid with elements the user could interact with.

Storytelling Element

Similar to the item analysis module, this module was done entirely within a story. This story takes place in the day of the life of the user. It starts with them going into their supervisor's office, and him explaining that there is a new tool that they will be using. After explaining a little about it, the supervisor explains that they have a case that has come in.

The user then goes through a simulated interview with a person (Design One). In this, they are explicitly not given the form, but told what information to gather for the form. This is to make sure that they do not simply ask the form's questions during the interview, a mistake made in testing of the raw content. They also take notes just as they really would during the session.

After they conduct the interview, the clinician gets a brief talk from their supervisor, and they are given the form (Design Two). The clinician goes through the form question by question, filling in all the spaces they would in the order they should, using notes similar to what they have just collected.

Next, the learners total their scores on the form (Design Three). This simple design gives them specific feedback on what they missed, and allows them to go back and correct their work until they get it right.

Lastly, they will communicate the results of the form to the relevant parties. The learner will use the answer they got from the form to communicate this result.

Instructional Principles and Decisions

Most of the principles I outlined in chapter one again influenced this design. I also incorporated many other principles and design decisions due to the simulation style designs I created.

First, I used Mayer's guided discovery principle. This principle by Mayer states that learners can excel in discovery based environments, particularly when guided (Clark and Mayer, 2014). I tried to make as much content discoverable and to "show" the learners, as opposed to "tell" them. The beginning of the second design is a good example of this. Rather than tell them about the form separately, the learner is able to explore the different parts of the form in a guided way.

Also in the second design, the placement of the content in the flags was an explicit decision. Previously, all of the content of the flags were placed on a slide that occurred prior to the simulation. I wanted to put the information in context, where it would be the most relevant, so the content was placed in the flag markers next to relevant questions. However to ensure they experience the content, clicking on the flags is required before moving forward.

Chapter 4

Conclusion

Thank you for reading about my instructional design process and designs. Comments and feedback are appreciated and can be send to mrm5572@psu.edu

References

- Clark, R. C., & Mayer, R. E. (2011). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. John Wiley & Sons.
- Malamed, C. (2009). *Visual language for designers: Principles for creating graphics that people understand*. Beverly, Mass.: Rockport.
- Nitko, A. J. (2004). *Educational assessment of students* (4th ed.). Columbus, OH: Pearson Prentice Hall.

ACADEMIC VITA

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Education

The Pennsylvania State University, *University Park, PA*

Schreyer Honors College

Fall 2010 – Present

- M.Ed. in Learning Design and Technology, B.S. in Psychology, Minor in Labor Relations
- Anticipated Dual Graduation – May 2015

Instructional Design Experience

Instructional Production Specialist

The Pennsylvania State University, *University Park, PA* Jan 2014 – Present

- Designs and builds elearning modules for Military Clinicians, Military Service Members, and their families to prepare them for various aspects of military and civilian life.
- Works as the Technical Lead on the *Severity Scale and Risk Assessment* project:
 - Collaborates with subject matter experts to analyze and organize content
 - Communicates with government partners throughout the design and development process
 - Leads small teams through the analysis and design process
 - Designs dynamic representations for elearning modules
 - Creates visual learning materials using Photoshop, Illustrator, and HTML/CSS

Academic Experience

The Pennsylvania State University, *University Park, PA* Fall 2013 – Fall 2014

- Works with Dr. Kyle Peck to design an undergraduate equivalent of the Learning, Design, and Technology Master's program
- Develops interactive learning modules to teach various aspects of Instructional Design
- Researches and applies scientifically tested design strategies to learning modules